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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,046	01/21/2004	Heinrich Schenk	1890-0044	3789

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/763,046	SCHENK, HEINRICH	
	Examiner	Art Unit	
	Chat C. Do	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/21/04;06/04/04;09/23/04;01/26/06*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 January 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/23/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 1 and 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated in which Figure 1 is seen or disclosed in prior art DE 19850642 and Figure 4 is disclosed in the background of invention. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitations cited in claims 19 and 33 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because the abstract is written more than 150 words in length and should be written on a separate sheet. Correction is required. See MPEP § 608.01(b).

Claim Objections

5. Claim 33 is objected to because of the following informalities:

Re claim 33, it is missing a period (.) at the end of claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 19-38 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 19-38 cite a method and arrangement for processing a signal in accordance with a predetermined mathematical algorithm. In order for claims to be statutory, claims must either include a practical/physical application or a concrete, useful, and tangible result. However, claims 19-38 merely disclose steps/components for method and arrangement for processing a signal without further disclosing a practical/physical application or a useful and tangible result. Claims 19-38 are pre-emptive in every world applications in processing signal by a predetermined mathematical algorithm. Therefore, claims 9-38 are directed to non-statutory subject matter.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 19-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schenk (D.E. 19850642) in view of the admitted prior art.

Re claim 19, Schenk discloses in Figures 1-3 a method for changing the crest factor of a discrete-time signal (e.g. abstract in page 13 and Figure 3 with component 20), the discrete-time signal formed from temporally consecutive signal values of a signal vector (e.g. an example seen in cols. 5-7); the method comprising: a) providing a signal vector (e.g. as seen in Figure 3 wherein signal is either Cx or Yx); c) determining at least one correction vector as a function of the filtered signal vector (e.g. col. 1 line 65 to col. 2 line 47); d) adding the at least one correction vector to the filtered signal vector (e.g. col. 2 lines 1-15). Schenk fails to disclose the step of filtering the signal vector prior determining the correction vector. However, the admitted prior art discloses in the background of invention the step of filtering the signal vector prior determining the correction vector (e.g. page 4 first paragraph). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the step of filtering the signal vector prior determining the correction vector as seen in the background of invention into the invention because it would enable to limit the frequency range of the input signal for processing (e.g. lines 1-2 page 4 of the present application).

Re claims 20-21, Schenk fails to disclose in Figures 1-3 step b) further comprises filtering the signal vector with a high pass filter or a low pass filter. However, the high pass or low pass filter is well-known in the art and widely used in technology. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the

invention is made to add the filter with a high pass or low pass into the invention because it would enable to limit the frequency range of the input signal to desired range for processing (e.g. lines 1-2 page 4 of the present application).

Re claim 22, Schenk further discloses in Figures 1-3 step a) further comprises providing a signal vector representative of a time domain discrete multitone modulated signal (e.g. col. 2 line 65 to col. 3 line 5).

Re claim 23, Schenk further discloses in Figures 1-3 steps c) and d) further comprise: dividing the filtered signal vector into at least two part signal vectors in a cyclically alternating manner (e.g. as input into component for reduction 20 in Figure 3); calculating at least one correction vector for each part signal vector (e.g. computing each delta for each input signal); adding the at least one correction vector for each part signal vector to the respective part signal vector (e.g. abstract page 13 and lines 1-15 col. 2); and recombining the part signal vectors (e.g. Figure 3 with component 5).

Re claim 24, Schenk further discloses in Figures 1-3 step c) further comprises determining the at least one correction vector as a function of the filtered signal vector (e.g. col. 2 lines 25-42), the at least one correction vector containing spectral components exclusively within frequency ranges that are different to frequency ranges which are used to transmit data in the signal (e.g. lower frequency range from carrier).

Re claim 25, Schenk further discloses in Figures 1-3 step c) further comprises calculating elements of the at least one correction vector using a largest element and a smallest element of elements of the filtered signal vector (e.g. cols. 5-6 and col. 2 lines 25-41).

Re claim 26, Schenk further discloses in Figures 1-3 calculating elements of the at least one correction vector further comprises carrying out the calculation: delta yk =- ~ "(- 1)k(max((- 1)k.yk)+min((- 1)k.yk)), where k is the index for the elements of the signal vector (e.g. delta y_{2k} in col. 2 lines 39-40).

Re claim 27, Schenk further discloses in Figures 1-3 calculating elements of the at least one correction vector comprises carrying out the calculation: delta yk =- -~ .(max(yk)+min(yk)), where k = 1, ..., number of the elements of the signal vector (y) (e.g. delta y_{1k} in col. 2 lines 25-28).

Re claim 28, Schenk further discloses in Figures 1-3 step c) further comprises multiplying elements of the at least one correction vector by a window function, so that the elements of the at least one correction vector are 0 in at least one range (e.g. col. 5 lines 10-58 wherein the correction vector only operates in data from 1-8 as window size).

Re claim 29, Schenk further discloses in Figures 1-3 step a) further comprise extending the signal vector at the beginning of a first end by at least one element, the at least one element obtained from an opposing second end of the signal vector (e.g. Figure 3).

Re claim 30, Schenk further discloses in Figures 1-3 step c) further comprises multiplying elements of the at least one correction vector by a window function, so that the elements of the at least one correction vector are 0 in at least one range (e.g. cols. 5-7 and Figure 3).

Re claim 31, Schenk further discloses in Figures 1-3 step a) further comprises providing the signal vector by calculating an inverse Fourier transformation for a first

signal (e.g. done or processed by the component 4 in Figure 3 for converting frequency domain data to time domain data).

Re claim 32, Schenk further discloses in Figures 1-3 the first signal is a signal for data transmission via telephone lines according to the ADSL standard (e.g. col. 1 lines 12-23).

Re claim 33, it has similar limitations cited in claim 19. Thus, claim 33 is also rejected under the same rationale as cited in the rejection of rejected claim 19.

Re claim 34, it has similar limitations cited in claim 20. Thus, claim 34 is also rejected under the same rationale as cited in the rejection of rejected claim 20.

Re claim 35, it has similar limitations cited in claim 21. Thus, claim 35 is also rejected under the same rationale as cited in the rejection of rejected claim 21.

Re claim 36, it has similar limitations cited in claim 33. Thus, claim 36 is also rejected under the same rationale as cited in the rejection of rejected claim 33.

Re claim 37, it has similar limitations cited in claim 23. Thus, claim 37 is also rejected under the same rationale as cited in the rejection of rejected claim 23.

Re claim 38, Schenk further discloses in Figures 1-3 an inverse fast Fourier transform (IFFT) block operably coupled to receive a discrete multitone modulated signal and generate a time domain signal vector therefrom, and wherein the digital signal vector includes the time domain signal vector generated by the IFFT block (e.g. done or processed by the component 4 in Figure 3 for converting frequency domain data to time domain data).

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 19-22, 25-27, and 33-36 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 7 of U.S. Patent No. 6,529,925 in view of the admitted prior art.

Claims 1 and 7 of Patent No. 6,529,925 by Schenk contain most elements of claims 19-22, 25-27, and 33-36 of the instant application, but fail to disclose the filtering

with either high pass or low pass filter of the provided signal. However, the admitted prior art discloses in page 4 first paragraph that the filtering with either high pass or low pass filter of the provided signal (e.g. first paragraph of page 4) wherein the high pass or low pass filter is well-known in the art and widely used in the technology. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the filtering with either high pass or low pass filter of the provided signal as seen in the admitted prior art under the background of invention into the current application because it would enable to limit the frequency range of signal for processing (e.g. lines 1-2 page 4 of present application).

Claims 19-23, 25, 29, 31, and 33-37 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 26, 32, 38-39, 41, 43-45, and 50 of copending Application No. 10/763,046 in view of the admitted prior art.

Claims 26, 32, 38-39, 41, 43-45, and 50 of copending Application No. 10/763,046 by Schenk contain most elements of claims 19-23, 25, 29, 31, and 33-37 of the instant application, but fail to disclose the filtering with either high pass or low pass filter of the provided signal. However, the admitted prior art discloses in page 4 first paragraph that the filtering with either high pass or low pass filter of the provided signal (e.g. first paragraph of page 4) wherein the high pass or low pass filter is well-known in the art and widely used in the technology. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the filtering with either high pass or low pass filter of the provided signal as seen in the admitted prior art under

the background of invention into the current application because it would enable to limit the frequency range of signal for processing (e.g. lines 1-2 page 4 of present application).

This is a provisional obviousness-type double patenting rejection.

"A later patent claim is not patentably distinct from an earlier patent claim if the later claim is obvious over, or **anticipated by**, the earlier claim. In re Longi, 759 F.2d at 896, 225 USPQ at 651 (affirming a holding of obviousness type double patenting because the claims at issue were obvious over claims in four prior art patents); In re Berg, 140 F.3d at 1437, 46 USPQ2d at 1233 (Fed. Cir. 1998) (affirming a holding of obviousness-type double patenting where a patent application claim to a genus is anticipated by a patent claim to a species within that genus). " ELI LILLY AND COMPANY v BARB LABORATORIES, INC., United States Court of Appeals for the Federal Circuit, ON PETITION FOR REHEARING EN BANC (DECIDED: May 30, 2001).

"Claim 12 and Claim 13 are generic to the species of invention covered by claim 3 of the patent. Thus, the generic invention is **"anticipated"** by the species of the patented invention. Cf., Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (holding that an earlier species disclosure in the prior art defeats any generic claim) 4 . This court's predecessor has held that, without a terminal disclaimer, the species claims preclude issuance of the generic application. In re Van Ornum, 686 F.2d 937, 944, 214 USPQ 761, 767 (CCPA 1982); Schneller, 397 F.2d at 354. Accordingly, absent a terminal disclaimer, claims 12 and 13 were properly rejected under the doctrine of obviousness type double patenting." (In re Goodman (CA FC) 29 USPQ2d 2010 (12/3/1993).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. U.S. Patent No. 4,701,873 to Schenk discloses a method and a circuit arrangement for DSP utilizing adaptive transversal filter techniques.

b. U.S. Patent No. 3,952,189 to Fabricius discloses a complex analog waveform generator.

c. U.S. Patent No. 6,075,816 to Werner et al. disclose windowing technique for blind equalization.

d. U.S. Patent Application No. 2003/0179833 to Porco et al. disclose a method and apparatus for reducing transmitter peak power requirements using dual matrices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do
Examiner
Art Unit 2193

June 4, 2007